CLAIMS

What is claimed is:

1. An electronic file transmission method for use with an electronic file transmission system including a file processing center, a transmission network and at least one file reading device, wherein the file reading device is provided with a hardware serial number; the electronic file transmission method comprising the steps of:

    (1) performing a file transmission process, allowing an electronic file to be symmetrically encrypted with the hardware serial number of the file reading device and transmitted between the file processing center and the file reading device through the transmission network, whereby the encrypted file is capable of being symmetrically decrypted only by using the same hardware serial number for file retrieval at the file processing center or the file reading device, and the decrypted file is again symmetrically encrypted with the same hardware serial number for file storage; and

    (2) ending the file transmission process between the file processing center and the file reading device.

2. The electronic file transmission method of claim 1, wherein the step (1) comprises the steps of:

    (1-1) determining if the file reading device requests for downloading an electronic file from the file processing center or for uploading an electronic file to the file processing center, wherein if file downloading is requested, step (1-2) is proceeded; if file uploading is requested, step (1-3) is proceeded;

    (1-2) for file downloading, symmetrically encrypting the electronic file with the hardware serial number of the file reading device via the file processing center, and transmitting the encrypted file from the file processing center to the file

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reading device, where the encrypted file is decrypted by using the same hardware serial number as for file encryption; and

(1-3)   for file uploading, symmetrically encrypting the electronic file with the hardware serial number via the file reading device, and transmitting the encrypted file from the file reading device to the file processing center, where the encrypted file is decrypted by using the same hardware serial number as for file encryption.

3. The electronic file transmission method of claim 2, wherein the step (1-2) comprises the steps of:

(1-2-1) requesting via the file reading device for downloading an electronic file from the file processing center; retrieving a hardware serial number corresponding to the file reading device via the file processing center from a database thereof, and symmetrically encrypting the electronic file with the hardware serial number via an encryption/decryption module of the file processing center, allowing the encrypted file to be transmitted from the file processing center to the file reading device through the transmission network;

(1-2-2) upon receiving the encrypted file from the file processing center via the file reading device, symmetrically decrypting the encrypted file via a retrieval/transmission module of the file reading device by using the same hardware serial number as for file encryption, and displaying the decrypted file on a screen of the file reading device;

(1-2-3) symmetrically encrypting the decrypted file with the same hardware serial number via the retrieval/transmission module of the file reading device for file storage; and

(1-2-4) determining via the file reading device if to continue downloading another electronic file from the file processing center, wherein if file downloading is continued, the step (1-2-1) is returned; or else, file downloading is ended.

4. The electronic file transmission method of claim 2, wherein the step (1-3) comprises the

5   steps of:

(1-3-1) requesting via the file reading device for uploading an electronic file to the file processing center, and symmetrically encrypting the electronic file with the hardware serial number of the file reading device via an encryption/decryption module of the file reading device, allowing the encrypted file to be transmitted

10   from the file reading device to the file processing center through the transmission network;

(1-3-2) upon receiving the encrypted file from the file reading device via the file processing center, retrieving a hardware serial number corresponding to the file reading device, and symmetrically decrypting the encrypted file via an

15   encryption/decryption module of the file processing center by using the retrieved hardware serial number, so as to obtain the file content;

(1-3-3) determining via the file reading device if to continue uploading another electronic file to the file processing center, wherein if file uploading is continued, the step (1-3-1) is returned; or else, file uploading is ended.

20   5. The electronic file transmission method of claim 1, wherein the file processing center is a digital information server for providing electronic files to be downloaded by the file reading device and storing electronic files uploaded from the file reading device.

6. The electronic file transmission method of claim 1, wherein the transmission network is Internet or intranet.

7. The electronic file transmission method of claim 1, wherein the file reading device is a personal computer, a personal digital assistant or an electronic book reader.

8. An electronic file transmission method for use with an electronic file transmission system including a file processing center, a transmission network and at least one file reading device, wherein the file reading device is provided with a hardware serial number; the electronic file transmission method comprising the steps of:

> (1) performing a registration initiation process, so as to allow the file processing center to obtain the hardware serial number of the file reading device;

> (2) performing a file transmission process, allowing an electronic file to be symmetrically encrypted with the hardware serial number of the file reading device and transmitted between the file processing center and the file reading device through the transmission network, whereby the encrypted file is capable of being symmetrically decrypted only by using the same hardware serial number for file retrieval at the file processing center or the file reading device, and the decrypted file is again symmetrically encrypted with the same hardware serial number for file storage; and

> (3) ending the file transmission process between the file processing center and the file reading device.

9. The electronic file transmission method of claim 8, wherein the step (1) comprises the steps of:

> (1-1) establishing connection via the transmission network between the file processing center and the file reading device, so as to allow the file processing center to transmit a public key thereof to the file reading device;

> (1-2) upon receiving the public key from the file processing center via the file reading device, encrypting the hardware serial number of the file reading device via a

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retrieval/transmission module of the file reading device by using the public key and an encryption method of an asymmetrically unidirectional function, and transmitting the encrypted hardware serial number to the file processing center via the transmission network; and

(1-3) upon receiving the encrypted hardware serial number from the file reading device via the file processing center, decrypting the encrypted hardware serial number via an encryption/decryption module of the file processing center by using a private key thereof and a decryption method of an asymmetrically unidirectional function, so as to obtain the unencrypted hardware serial number of the file reading device and store the hardware serial number in a database of the file processing center.

10. The electronic file transmission method of claim 8, wherein the step (2) comprises the steps of:

(2-1) determining if the file reading device requests for downloading an electronic file from the file processing center or for uploading an electronic file to the file processing center, wherein if file downloading is requested, step (2-2) is proceeded; if file uploading is requested, step (2-3) is proceeded;

(2-2) for file downloading, symmetrically encrypting the electronic file with the hardware serial number of the file reading device via the file processing center, and transmitting the encrypted file from the file processing center to the file reading device, where the encrypted file is decrypted by using the same hardware serial number as for file encryption; and

(2-3) for file uploading, symmetrically encrypting the electronic file with the hardware serial number via the file reading device, and transmitting the encrypted file from the file reading device to the file processing center, where

the encrypted file is decrypted by using the same hardware serial number as for file encryption.

11. The electronic file transmission method of claim 10, wherein the step (2-2) comprises the steps of:

5   (2-2-1) requesting via the file reading device for downloading an electronic file from the file processing center; retrieving a hardware serial number corresponding to the file reading device via the file processing center from a database thereof, and symmetrically encrypting the electronic file with the hardware serial number via an encryption/decryption module of the file processing center, allowing the

10   encrypted file to be transmitted from the file processing center to the file reading device through the transmission network;

(2-2-2) upon receiving the encrypted file from the file processing center via the file reading device, symmetrically decrypting the encrypted file via a retrieval/transmission module of the file reading device by using the same

15   hardware serial number as for file encryption, and displaying the decrypted file on a screen of the file reading device;

(2-2-3) symmetrically encrypting the decrypted file with the same hardware serial number via the retrieval/transmission module of the file reading device for file storage; and

20   (2-2-4) determining via the file reading device if to continue downloading another electronic file from the file processing center, wherein if file downloading is continued, the step (2-2-1) is returned; or else, file downloading is ended.

12. The electronic file transmission method of claim 10, wherein the step (2-3) comprises the steps of:

25   (2-3-1) requesting for uploading an electronic file via the file reading device to the file

processing center, and symmetrically encrypting the electronic file with the hardware serial number of the file reading device via an encryption/decryption module of the file reading device, allowing the encrypted file to be transmitted from the file reading device to the file processing center through the transmission network;

(2-3-2) upon receiving the encrypted file from the file reading device via the file processing center, retrieving a hardware serial number corresponding to the file reading device, and symmetrically decrypting the encrypted file via an encryption/decryption module of the file processing center by using the retrieved hardware serial number, so as to obtain the file content;

(2-3-3) determining via the file reading device if to continue uploading another electronic file to the file processing center, wherein if file uploading is continued, the step (2-3-1) is returned; or else, file uploading is ended.

13. The electronic file transmission method of claim 8, wherein the file processing center is a digital information server for providing electronic files to be downloaded by the file reading device and storing electronic files uploaded from the file reading device.

14. The electronic file transmission method of claim 8, wherein the transmission network is Internet or intranet.

15. The electronic file transmission method of claim 8, wherein the file reading device is a personal computer, a personal digital assistant or an electronic book reader.

16. An electronic file transmission system, comprising:

at least one file reading device having a hardware serial number, for symmetrically encrypting an electronic file to be uploaded with the hardware serial number of the file reading device, and for symmetrically decrypting a downloaded encrypted file by using the hardware serial number of the file reading device, wherein the

decrypted file is again symmetrically encrypted with the same the hardware serial number by the file reading device for file storage;

a file processing center serving as a digital information server, for providing a public key thereof to the file reading device, and for providing electronic files to be downloaded by the file reading device and storing electronic files uploaded from the file reading device; wherein the file processing center includes:

a database for storing the hardware serial number of the file reading device; and

an encryption/decryption module, for asymmetrically decrypting an encrypted hardware serial number from the file reading device by using a private key of the file processing center, so as to obtain the unencrypted hardware serial number and store the hardware serial number in the database; for symmetrically decrypting an uploaded encrypted file from the file reading device by using a hardware serial number stored in the database corresponding to the file reading device, so as to retrieve the file content; and for symmetrically encrypting an electronic file with a hardware serial number of a file reading device that requests for downloading the electronic file, and transmitting the encrypted file to the file reading device; and

a transmission network for connecting the file processing center to the file reading device.